

$$2.2/17 \quad f(x) = \frac{1 - \cos(2x-2)}{(x-1)^2}$$

a) plot a graph . . . . . Winplot

$Y_1(\sim)$

.99

.999

1.001

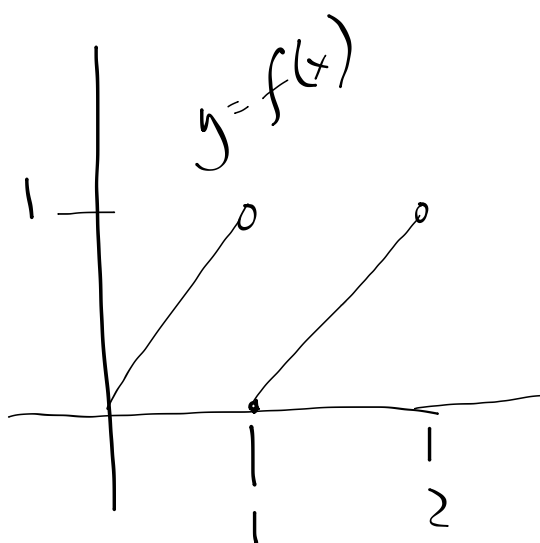
$Y =$   
VARs

$\Rightarrow$   
ENTER

select  $Y_1$

$Y_1(\sim)$

21)



$$f(1) = 0$$

$$\lim_{x \rightarrow 1^-} f(x) = 1$$

$$\lim_{x \rightarrow 1^+} f(x) = 0$$

$$\lim_{x \rightarrow 1} f(x) = \text{does not exist (DNE)}$$

does not exist

$\frac{0}{0}$  must be undefined

vs.

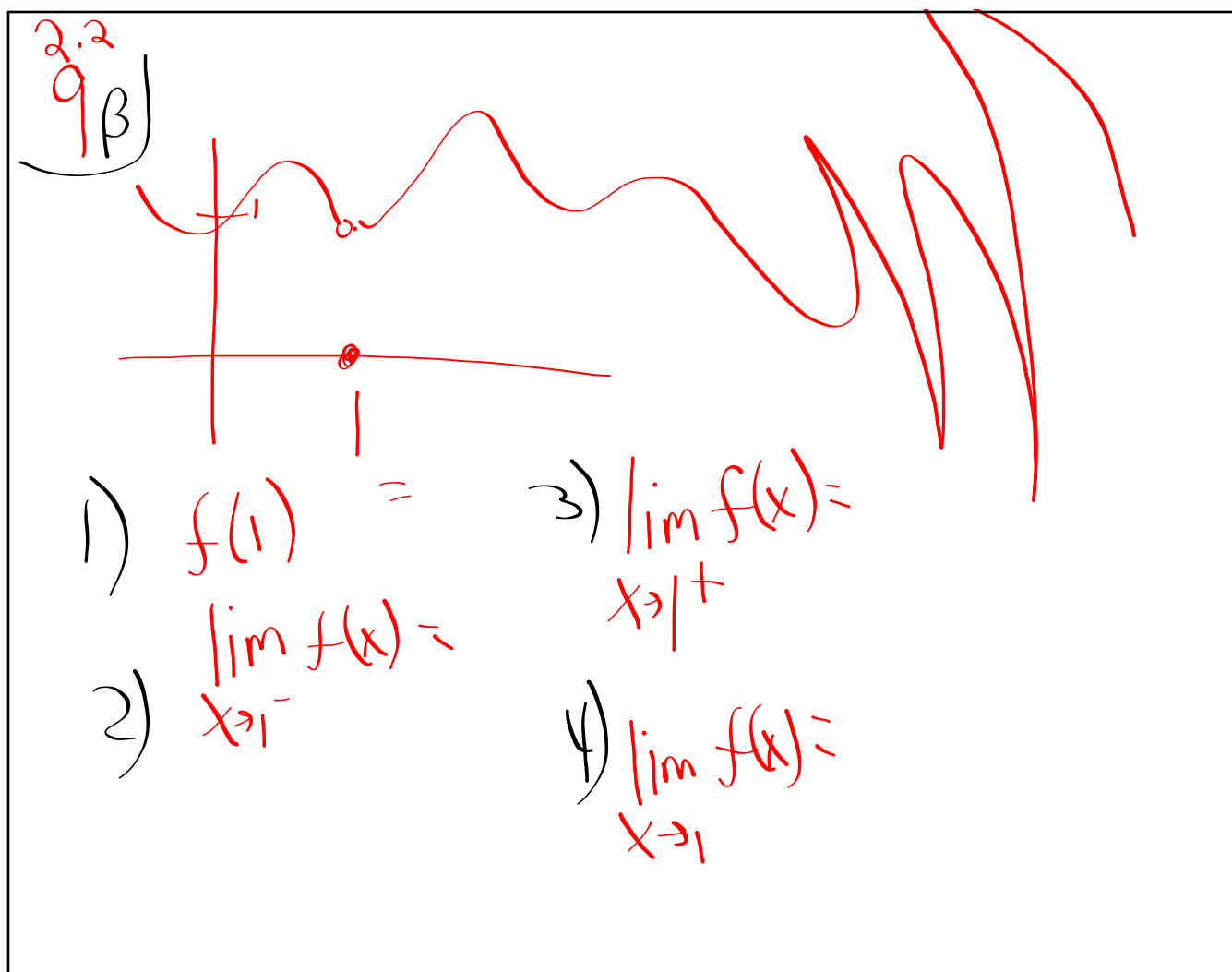
vs.

$\Delta$

Universal  
quantifiers

$\forall$  - for  
every

$\exists$  - there  
exists



2.2/33

$$\lim_{h \rightarrow 0} (1+3h)^{\frac{2}{h}} = +\infty \quad \left[ \begin{array}{l} \text{AKA} \\ \text{DNE} \\ (2/x) \end{array} \right]$$

$$y_1 = (1+3x)$$

$$y_1(\sim 0.1)$$

$$y_1(\sim 0.01)$$

.0001

↓ bigger  
↑ bigger

$$\frac{2}{h} \ln(1+3h)$$

LATER

$$\frac{2 \ln(1+3h)}{h}$$

6

or

$$e^6 = 403.4?$$

$$e \approx 2.718281828459045 \dots$$

2.1) sketch a grf of A f<sup>n</sup> with:

2.2  
2.9

$$g(1) = 0$$

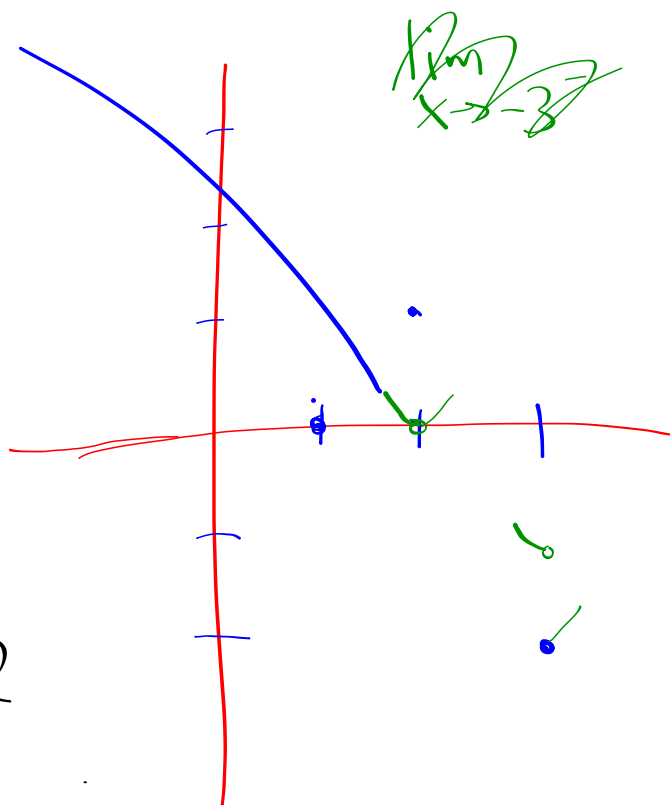
$$g(2) = 1$$

$$g(3) = -2$$

$$\lim_{x \rightarrow 2} g(x) = 0$$

$$\lim_{x \rightarrow 3^-} g(x) = -1$$

$$\lim_{x \rightarrow 3^+} g(x) = -2$$



HW

2.2) 2-4, 6-8, 27

figure<sup>at</sup> 37